

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT	17 or 19 or 113	14	<u>L14</u>
USPT	(110 or 111) and 112	7	<u>L13</u>
USPT	(gel\$ or \$methylcellulose or CMC or HPMC) same inject\$ same (implant\$ or microparticle or particul\$ or microspher\$ or microdispers\$ or dispers\$)	4734	<u>L12</u>
USPT	(bioresorbab\$ or bioabsorbab\$) with (microsphere or microparticle or microdispers\$ or dispers\$) with polymer\$	23	<u>L11</u>
USPT	(\$lactic or \$glycolic or \$caprolactone) same (microsphere or microparticle or microdispers\$ or dispers\$) same (molecular adj (weight or mass)) same viscosity	77	<u>L10</u>
USPT	17 or 18	7	<u>L9</u>
USPT	14 and 15	5	<u>L8</u>
USPT	13 or 16	6	<u>L7</u>
USPT	15 and 12	4	<u>L6</u>
USPT	(\$lactic with \$glycolic with \$caprolactone) and (523/\$)!.CCLS.	44	<u>L5</u>
USPT	11 and (microsphere or microparticle or microdispersion)	30	<u>L4</u>
USPT	11 and 12	6	<u>L3</u>
USPT	(microsphere or microparticle or microdispersion) with gel\$	1225	<u>L2</u>
USPT	((523/113)!.CCLS.)	275	<u>L1</u>

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Search Results - Record(s) 1 through 14 of 14 returned.☐ 1. Document ID: US 6066340 A

L14: Entry 1 of 14

File: USPT

May 23, 2000

US-PAT-NO: 6066340

DOCUMENT-IDENTIFIER: US 6066340 A

TITLE: Process for the preparation of microspheres containing biologically active components

DATE-ISSUED: May 23, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Callegaro; Lanfranco	Padua	N/A	N/A	ITX
Romeo; Aurelio	Rome	N/A	N/A	ITX
Benedetti; Luca	Vicenza	N/A	N/A	ITX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Fidia S.p.A.	Abano Terme	N/A	N/A	ITX	03

APPL-NO: 8/ 169558

DATE FILED: December 20, 1993

PARENT-CASE:

This application is a continuation, of application Ser. No. 07/890,108 filed on May 29, 1992, now abandoned.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
IT	PD91A0102	May 31, 1991

INT-CL: [7] A61K 9/52

US-CL-ISSUED: 424/499; 424/490, 424/493, 514/951, 514/963

US-CL-CURRENT: 424/499; 424/490, 424/493, 514/951, 514/963

FIELD-OF-SEARCH: 424/489, 424/490, 424/493, 424/499, 514/951, 514/963

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4462983</u>	July 1984	Azia et al.	N/A
<u>4847091</u>	July 1989	Illum	N/A
<u>4853226</u>	August 1989	Machida et al.	424/450
<u>4904479</u>	February 1990	Illum	424/490
<u>4925673</u>	May 1990	Steiner	424/484
<u>4946870</u>	August 1990	Partain, III et al.	424/449
<u>4965353</u>	October 1990	della Valle et al.	424/490
<u>5008116</u>	April 1991	Cahn	424/491
<u>5073543</u>	December 1991	Marshall et al.	514/21
<u>5108759</u>	April 1992	Ranney	424/499
<u>5204108</u>	April 1993	Illum	N/A
<u>5629011</u>	May 1997	Illum	424/434
<u>5707644</u>	January 1998	Illum	424/434
<u>5804212</u>	September 1998	Illum	N/A
<u>5833891</u>	November 1998	Subramaniam et al.	264/7
<u>5856299</u>	January 1999	Righetto et al.	514/8
<u>5874029</u>	February 1999	Subramaniam et al.	264/12
<u>5879359</u>	March 1999	Dorigatti et al.	606/152

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
47099	June 1990	AUX
A1 0122036	October 1984	EPX
0251905	January 1988	EPX
WO 8703197	June 1987	WOX
WO 8809163	December 1988	WOX
WO 8903207	April 1989	WOX
WO 9106282	May 1991	WOX

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Alphabetical List of Compounds.
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Illum, "Microspheres As a Potential Controlled Release Nasal Drug Delivery System," 205-210.
Fisher et al., J. Pharm. Pharmacol. 37:38-41 (1985).
Davis et al., "Microspheres as Controlled-Release Systems for Parenteral and Nasal Administration", pp. 201-213.
Illum et al., International Journal of Pharmaceutics, 46:261-265 (1988).
Bodmeier et al., Pharmaceutical Research, vol. 6, No. 5, 1989.
Hermens et al., Pharmaceutical Research, vol. 7, No. 2, 1990.
Illum et al., International Journal of Pharmaceutics, 39:189-199 (1987).
M. Bendetti, et al., (1990) Journal of Controlled Release, 13:33-41.
Langer, (1990) Science, 249:1527-1533.

ART-UNIT: 167

PRIMARY-EXAMINER: Harrison; Robert H.

ATTY-AGENT-FIRM: Birch, Stewart, Kolasch & Birch, LLP

ABSTRACT:

The present invention is directed to a microsphere for the controlled release of a biologically active molecule which comprises a biologically active molecule and an ester of hyaluronic acid or mixtures of said esters of hyaluronic acids, and wherein said biologically active molecule is surrounded by or adhered to said ester of hyaluronic acid, and wherein said microsphere has a diameter of between 1

.mu.m to 100 .mu.m.

23 Claims, 8 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw Desc	Image
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2. Document ID: US 6045830 A

L14: Entry 2 of 14

File: USPT

Apr 4, 2000

US-PAT-NO: 6045830

DOCUMENT-IDENTIFIER: US 6045830 A

TITLE: Method of production of sustained-release preparation

DATE-ISSUED: April 4, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Igari; Yasutaka	Hyogo	N/A	N/A	JPX
Takada; Shigeyuki	Hyogo	N/A	N/A	JPX
Kosakai; Hiroshi	Kanagawa	N/A	N/A	JPX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Takeda Chemical Industries, Ltd.	Osaka	N/A	N/A	JPX	03

APPL-NO: 8/ 704991

DATE FILED: August 29, 1996

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	7-226457	September 4, 1995

INT-CL: [7] A61K 9/16, A61K 47/34

US-CL-ISSUED: 424/501; 424/426, 428/402.24

US-CL-CURRENT: 424/501; 424/426, 428/402.24

FIELD-OF-SEARCH: 424/426, 424/428, 424/486, 424/501, 525/450, 428/402, 428/402.24, 514/772.7

REF-CITED:

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0 145 240	June 1985	EPX
0 178 824	April 1986	EPX
0 442 671	August 1991	EPX
0 586 238	March 1994	EPX
4-217914	August 1992	JPX
2 246 514	February 1992	GBX
89/04673	June 1989	WOX
96/07399	March 1996	WOX

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ART-UNIT: 167

PRIMARY-EXAMINER: Webman; Edward J.

ATTY-AGENT-FIRM: Foley & Lardner

ABSTRACT:

A method of production of sustained-release microcapsules that comprises obtaining microcapsules comprising a bioactive substance that are encapsulated with a biodegradable polymer, and thermally drying the obtained microcapsules at a temperature not lower than the glass transition temperature of the biodegradable polymer for about 24 to about 120 hours to produce the sustained-release microcapsules comprising, relative to the weight of the sustained-release microcapsule, not less than 60% (w/w) of the biodegradable polymer, possessing pharmaceutical characteristics clinically excellent in that a bioactive substance is released at constant rate over a very long period of time from just after administration with dramatically suppressed initial release of the bioactive substance in excess just after administration and with minimum remaining organic solvent.

16 Claims, 0 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	FIGS	Draw Desc	Image
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☐ 3. Document ID: US 6039970 A

L14: Entry 3 of 14

File: USPT

Mar 21, 2000

US-PAT-NO: 6039970

DOCUMENT-IDENTIFIER: US 6039970 A

TITLE: Process for the preparation of microspheres containing biologically active components

DATE-ISSUED: March 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Callegaro; Lanfranco	Padua	N/A	N/A	ITX
Romeo; Aurelio	Rome	N/A	N/A	ITX
Benedetti; Luca	Vicenza	N/A	N/A	ITX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Fidia S.p.A.	Abano Terme	N/A	N/A	ITX	03

APPL-NO: 9/ 231353

DATE FILED: January 13, 1999

PARENT-CASE:

This application is a divisional of Ser. No. 08/169,558 filed on Dec. 20, 1993, which is a continuation of Ser. No. 07/890,108 filed on May 29, 1992, abandoned.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
IT	PD91A0102	May 31, 1991

INT-CL: [7] A61K 9/16

US-CL-ISSUED: 424/434; 424/489, 424/499, 514/54, 514/866

US-CL-CURRENT: 424/434; 424/489, 424/499, 514/54, 514/866

FIELD-OF-SEARCH: 424/434, 424/489, 424/499, 514/54, 514/866

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4462983</u>	July 1984	Azria et al.	N/A
<u>4847091</u>	July 1989	Illum	N/A
<u>4853226</u>	August 1989	Machida et al.	N/A
<u>4904479</u>	February 1990	Illum	N/A
<u>4925673</u>	May 1990	Steiner	N/A
<u>4946870</u>	August 1990	Partain, III et al.	N/A
<u>4965353</u>	October 1990	della Valle et al.	N/A
<u>5008116</u>	April 1991	Cahn	N/A
<u>5073543</u>	December 1991	Marshall et al.	N/A
<u>5108759</u>	April 1992	Ranney	N/A
<u>5204108</u>	April 1993	Illum	N/A
<u>5629011</u>	May 1997	Illum	424/434
<u>5707644</u>	January 1998	Illum	424/434
<u>5804212</u>	September 1998	Illum	424/434
<u>5833891</u>	November 1998	Subramaniam et al.	264/7
<u>5856299</u>	January 1999	Righetto et al.	514/8
<u>5874029</u>	February 1999	Subramaniam et al.	264/12
<u>5879359</u>	March 1999	Dorigatti et al.	606/152
<u>5939323</u>	August 1999	Valentini et al.	435/395

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
47099	June 1990	AUX
A1 0122036	October 1984	EPX
0251905	January 1988	EPX
WO 8703197	June 1987	WOX
WO 8809163	December 1988	WOX
WO 8903207	April 1989	WOX
WO 9106282	May 1991	WOX

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Fisher et al., J. Pharm. Pharmacol. 37:38-41 (1985).
Sugibayashi et al., Biomaterials 1982, vol. 3, pp. 181-186 (Jul.).
Ratcliffe et al., J. Pharm. Pharmacol. 36:431-436 (1984).
Alphabetical List of Compounds.
Davis et al., "Microspheres as Controlled-Release Systems for Parenteral and Nasal Administration", pp. 201-213.
Illum et al., International Journal of Pharmaceutics, 46:261-265 (1988).
Bodmeier et al., Pharmaceutical Research, vol. 6, No. 5, 1989.
Hermens et al., Pharmaceutical Research, vol. 7, No. 2, 1990.
Illum et al., International Journal of Pharmaceutics, 39:189-199 (1987).
M. Bendetti et al., Journal of Controlled Release, 13:33-41 (1990).
Langer, Science, 249:1527-1533 (1990).

ART-UNIT: 167

PRIMARY-EXAMINER: Harrison; Robert H.

ATTY-AGENT-FIRM: Birch, Stewart, Kolasch & Birch, LLP

ABSTRACT:

The present invention is directed to a microsphere for the controlled release of a biologically active molecule which comprises a biologically active molecule and an ester of hyaluronic acid or mixtures of said esters of hyaluronic acids, and wherein said biologically active molecule is surrounded by or adhered to said ester of hyaluronic acid, and wherein said microsphere has a diameter of between 1 .mu.m to 100 .mu.m.

6 Claims, 8 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWOC	Draw Desc	Image
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☐ 4. Document ID: US 5955096 A

L14: Entry 4 of 14

File: USPT

Sep 21, 1999

US-PAT-NO: 5955096

DOCUMENT-IDENTIFIER: US 5955096 A

TITLE: Methods and compositions for enhancing the bioadhesive properties of polymers using organic excipients

DATE-ISSUED: September 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Santos; Camila A.	Newport	RI	N/A	N/A
Jacob; Jules S.	Taunton	MA	N/A	N/A
Hertzog; Benjamin A.	Providence	RI	N/A	N/A
Carino; Gerardo P.	Providence	RI	N/A	N/A
Mathiowitz; Edith	Brookline	MA	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Brown University Research Foundation	Providence	RI	N/A	N/A	02

APPL-NO: 8/ 670326

DATE FILED: June 25, 1996

INT-CL: [6] C08G 67/04, A61K 9/00, A61F 2/00

US-CL-ISSUED: 424/434; 424/486, 424/491, 424/497, 424/499, 523/105, 523/113, 528/271, 528/272, 525/165, 525/419

US-CL-CURRENT: 424/434; 424/486, 424/491, 424/497, 424/499, 523/105, 523/113, 525/165, 525/419, 528/271, 528/272

FIELD-OF-SEARCH: 424/434, 424/491, 424/498, 528/271, 523/105, 523/113, 525/419

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>2675619</u>	April 1954	Cone	33/449
<u>2677700</u>	May 1954	Jackson et al.	568/618
<u>2979578</u>	April 1961	Curtis	200/196
<u>3036118</u>	May 1962	Jackson et al.	560/182
<u>3535307</u>	October 1970	Moss et al.	536/18.3
<u>3829506</u>	August 1974	Schmolka et al.	568/624
<u>4757128</u>	July 1988	Domb et al.	528/271
<u>4861627</u>	August 1989	Mathiowitz et al.	427/213.31
<u>4938763</u>	July 1990	Dunn et al.	600/37
<u>4976968</u>	December 1990	Steiner	424/491
<u>4997904</u>	March 1991	Domb	424/426
<u>5019400</u>	May 1991	Gombotz et al.	424/497
<u>5173298</u>	December 1992	Meadows	424/427
<u>5175235</u>	December 1992	Domb et al.	528/271
<u>5271961</u>	December 1993	Mathiowitz et al.	424/491
<u>5474768</u>	December 1995	Robinson	424/78.31
<u>5518731</u>	May 1996	Meadows	424/427
<u>5611344</u>	March 1997	Bernstein et al.	424/673

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0 333 523 A2	September 1989	EPX
91/06286	May 1991	WOX
91/06287	May 1991	WOX
WO 92/11871 A1	July 1992	WOX
93/21906	November 1993	WOX

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[N-(1-methyl-2-pyrrolidinylidene)-N-pheyy1-1-pyrrolidinecarboxyimidamide], a new orally effective hypoglycemic agent," Diabetes, 27:(8):856-67 (1978) .

ART-UNIT: 174

PRIMARY-EXAMINER: Yoon; Tae

ATTY-AGENT-FIRM: Arnall Golden & Gregory LLP

ABSTRACT:

Methods and compositions are provided for enhancing the bioadhesive properties of polymers used in drug delivery systems. The bioadhesive properties of a polymer are enhanced by incorporating an anhydride oligomer into the polymer to enhance the ability of the polymer to adhere to a tissue surface such as a mucosal membrane. Anhydride oligomers which enhance the bioadhesive properties of a polymer include oligomers synthesized from dicarboxylic acid monomers, preferably those found in Krebs glycolysis cycle, especially fumaric acid. The oligomers can be incorporated within a wide range of polymers including proteins, polysaccharides and synthetic biocompatible polymers. In one embodiment, anhydride oligomers can be incorporated within polymers used to form or coat drug delivery systems, such as microspheres, which contain a drug or diagnostic agent. The oligomers can either be solubilized and blended with the polymer before manufacture or else used as a coating with polymers over existing systems. The polymers, for example in the form of microspheres, have improved ability to adhere to mucosal membranes, and thus can be used to deliver a drug or diagnostic agent via any of a range of mucosal membrane surfaces including those of the gastrointestinal, respiratory, excretory and reproductive tracts.

32 Claims, 1 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 5. Document ID: US 5814340 A

L14: Entry 5 of 14

File: USPT

Sep 29, 1998

US-PAT-NO: 5814340

DOCUMENT-IDENTIFIER: US 5814340 A

TITLE: Controlled release systems and low dose androgens

DATE-ISSUED: September 29, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Labrie; Fernand	Quebec	N/A	N/A	CAX
Lepage; Martin	Quebec	N/A	N/A	CAX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Endorecherche Inc.	Quebec	N/A	N/A	CAX	03

APPL-NO: 8/ 484742
DATE FILED: June 7, 1995

PARENT-CASE:

RELATED APPLICATION This application is a division of U.S. pat. application Ser. No. 08/398,096, filed Mar. 3, 1995 which is in turn a division of U.S. pat. application Ser. No. 07/900,817 filed Jun. 24, 1992, now U.S. Pat. No. 5,434,146 which is in turn a continuation-in-part of U.S. pat. application Ser. No. 07/724,532, filed Jun. 28, 1991, now abandoned.

INT-CL: [6] A61K 31/56, A61K 31/58

US-CL-ISSUED: 424/489; 424/493, 424/497, 523/113, 428/402, 514/169, 514/170, 514/177, 514/179, 514/964

US-CL-CURRENT: 424/489; 424/493, 424/497, 428/402, 514/169, 514/170, 514/177, 514/179, 514/964, 523/113

FIELD-OF-SEARCH: 424/489, 424/493, 424/497, 523/113, 428/402, 514/169, 514/170, 514/177, 514/179, 514/964

REF-CITED:

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
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<u>4472382</u>	September 1984	Labrie	424/177
<u>4522831</u>	June 1985	Chatterton, Jr.	514/169
<u>4624665</u>	November 1986	Nuwayser	604/307
<u>4760053</u>	July 1988	Labrie	514/15
<u>4775660</u>	October 1988	Labrie	514/15
<u>4775661</u>	October 1988	Labrie	514/15
<u>4863744</u>	September 1989	Urquhart et al.	424/489
<u>5023080</u>	June 1991	Gupta	424/489

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ART-UNIT: 127

PRIMARY-EXAMINER: Nutter; Nathan M.

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen, LLP

ABSTRACT:

Methods of treatment and prevention of estrogen-related diseases, and of fertility control, include low dose (e.g. less than 50 nanomolar serum concentration) administration of certain anabolic steroids, progestins and other substantially non-masculinizing androgenic compounds. Sustained release formulations substantially free of organic solvent, and sustained release formulations for maintaining low serum levels of androgen are disclosed.

22 Claims, 16 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 6. Document ID: US 5741329 A

L14: Entry 6 of 14

File: USPT

Apr 21, 1998

US-PAT-NO: 5741329

DOCUMENT-IDENTIFIER: US 5741329 A

TITLE: Method of controlling the pH in the vicinity of biodegradable implants

DATE-ISSUED: April 21, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Agrawal; Chandra Mauli	San Antonio	TX	N/A	N/A
Athanasίου; Kyriacos A.	San Antonio	TX	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Board of Regents, The University of Texas System	Austin	TX	N/A	N/A	02

APPL-NO: 8/ 361332

DATE FILED: December 21, 1994

INT-CL: [6] A61F 2/02

US-CL-ISSUED: 623/11; 623/16, 606/76, 523/113, 523/115, 424/423

US-CL-CURRENT: 424/423; 523/113, 523/115, 606/76

FIELD-OF-SEARCH: 623/11, 623/16, 606/76, 606/77, 523/113, 523/115, 424/423, 424/426

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3911098</u>	October 1975	Capozza	424/428
<u>4479911</u>	October 1984	Fong	264/4
<u>4645503</u>	February 1987	Lin et al.	623/16
<u>4694039</u>	September 1987	Mottus et al.	524/718
<u>4722948</u>	February 1988	Sonderson	523/115
<u>4990161</u>	February 1991	Kampner	623/16
<u>5286763</u>	February 1994	Gerhart et al.	604/40
<u>5433751</u>	July 1995	Christel et al.	606/77

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0 50 939 A	September 1991	EPX
0 564 369 A1	June 1993	EPX

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ART-UNIT: 338

PRIMARY-EXAMINER: Prebilic; Paul

ATTY-AGENT-FIRM: Greenlee, Winner and Sullivan, P.C.

ABSTRACT:

The invention discloses pH-controlling devices that comprise a biodegradable

polymer and a pH-controlling substance, particularly an alkaline, acidic or buffering agent. By way of example, such alkaline agents include calcium carbonate and sodium bicarbonate. Methods of preparing such devices are also described. Methods for enhancing biocompatibility of an implantable device are also provided, as neutralizing alkaline materials are released at a rate that offsets changes in pH typically observed as polymers degrade to various acidic or alkaline by-products. By way of example, biodegradable polymers include PLA, PGA, polycaprolactone, copolymers thereof, or mixtures thereof. A new technique is also disclosed to increase the surface porosity of porous implants which have a tendency to form relatively impermeable coverings. This technique entails the use of mechanical means to remove at least part of said covering, thus increasing the implant's surface porosity and permeability.

19 Claims, 6 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 7. Document ID: US 5728752 A

L14: Entry 7 of 14

File: USPT

Mar 17, 1998

US-PAT-NO: 5728752

DOCUMENT-IDENTIFIER: US 5728752 A

TITLE: Injectable microdispersions for soft tissue repair and augmentation

DATE-ISSUED: March 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Scopelianos; Angelo G.	Whitehouse Station	NJ	N/A	N/A
Arnold; Steven C.	Sparta	NJ	N/A	N/A
Bezwada; Rao S.	Whitehouse Station	NJ	N/A	N/A
Roller; Mark B.	North Brunswick	NJ	N/A	N/A
Huxel; Shawn T.	Lakehurst	NJ	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ethicon, Inc.	Somerville	NJ	N/A	N/A	02

APPL-NO: 8/ 618439

DATE FILED: March 15, 1996

PARENT-CASE:

This is a division of application Ser. No. 08/324,543, filed Oct. 18, 1994, now U.S. No. 5,399,852, which is hereby incorporated by reference.

INT-CL: [6] C08L 3/00, A61F 2/00, A61M 5/00

US-CL-ISSUED: 523/113; 424/423, 424/426, 525/411, 525/415, 623/12, 623/14, 623/15, 528/354, 528/361

US-CL-CURRENT: 523/113; 424/423, 424/426, 525/411, 525/415, 528/354, 528/361, 623/23.76

FIELD-OF-SEARCH: 823/113, 424/423, 424/426, 525/411, 525/415, 528/354, 623/12, 623/14, 623/15

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4595713</u>	June 1986	St. John	523/105
<u>5442033</u>	August 1995	Bezwada	528/354

ART-UNIT: 151
PRIMARY-EXAMINER: Merriam; Andrew E. C.
ATTY-AGENT-FIRM: Woodrow; Hal B.

ABSTRACT:

The present invention provides injectable, bioabsorbable microdispersions suitable for use as a soft tissue repair or augmentation material in animals comprising a fluid carrier that is a liquid polymer selected from the group consisting of liquid polymers of a plurality of at least two different first lactone repeating units and other liquid polymers; and a particulate material. Additionally, the present invention also discloses methods of using these microdispersions for tissue augmentation and repair as well as kits which include prefilled containers to facilitate the use of these materials.

21 Claims, 1 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 8. Document ID: US 5635216 A

L14: Entry 8 of 14

File: USPT

Jun 3, 1997

US-PAT-NO: 5635216
DOCUMENT-IDENTIFIER: US 5635216 A

TITLE: Microparticle compositions containing peptides, and methods for the preparation thereof

DATE-ISSUED: June 3, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Thompson; William W.	Indianapolis	IN	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Eli Lilly and Company	Indianapolis	IN	N/A	N/A	02

APPL-NO: 8/ 168941
DATE FILED: December 16, 1993

INT-CL: [6] A61K 9/14
US-CL-ISSUED: 424/501; 514/2, 514/12
US-CL-CURRENT: 424/501; 514/12, 514/2
FIELD-OF-SEARCH: 424/422, 424/486, 424/489, 424/490, 424/497, 424/501, 514/2, 514/12

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4148871</u>	April 1979	Pitt et al.	N/A
<u>4530840</u>	July 1985	Tice et al.	N/A
<u>4542025</u>	September 1985	Tice et al.	N/A
<u>4741872</u>	May 1988	De Luca et al.	N/A
<u>4767628</u>	August 1988	Hutchinson	N/A
<u>4962091</u>	October 1990	Eppstein et al.	514/2
<u>5192741</u>	March 1993	Orsolini et al.	514/4
<u>B14767628</u>	July 1990	Hutchinson	N/A

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H.. Jeffrey, et al., "The preparation and characterisation of poly(lactide-co-glycolide) microparticles. I: Oil-in-water emulsion solvent evaporation", International Journal of Pharmaceutics, 1991, vol. 77, pp. 169-175 Oct.

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D. Bodmer, et al., "Factors influencing the release of peptides and proteins from biodegradable parenteral depot systems", Journal of Controlled Release, 1992, vol. 21, pp. 129-138 Jul.

B. Mariette, et al., "Release of the GRF29NH.sub.2 analog of human GRF44NH.sub.2 from a PLA/GA matrix", Journal of Controlled Release, 1993, vol. 24, pp. 237-246 Jun.

B. Floy, et al., "Design of Biodegradable Polymer Systems for Controlled Release of Bioactive Agents", Polymeric Delivery Systems, American Chemical Society, 1993, pp. 154-167 (month unavailable).

V.J. Csernus, et al., "Release of peptides from sustained delivery systems (microcapsules and microparticles) in vivo", Int. J. Peptide Protein Res., 1990, vol. 35, pp. 557-565 Jun.

R. Jalil and J.R. Nixon, "Microencapsulation using poly(DL-lactic acid)I: Effect of preparative variables on the microcapsules characteristics and release kinetics", J Microencapsulation, 1990, vol. 7, No. 2, pp. 229-244 Apr.-Jun.

J.L. Grangier, et al., "Nanoparticles as carriers for growth hormone releasing factor", Journal of Controlled Release, 1991, vol. 15, pp. 3-13 Feb.

ART-UNIT: 127

PRIMARY-EXAMINER: Mullis; Jeffrey C.

ATTY-AGENT-FIRM: Cantrell; Paul R. Page; Kathleen R. S.

ABSTRACT:

A composition of polyester microparticles containing bioactive polypeptide agents and methods for preparing the composition and administering bioactive agents. The composition comprises biocompatible, biodegradable microparticles having a polyester matrix and from about 5% to about 25% by weight of a biologically active, water-soluble polypeptide dispersed throughout the matrix, the polypeptide selected from the group consisting of growth hormone releasing factor, synthetic analogs of growth hormone releasing factor, pharmacologically active fragment thereof and somatogenin. The method for preparing the composition includes dissolving polyester in an organic solvent; suspending a biologically active agent in the polyester solution; emulsifying the suspension into an aqueous medium in which the agent is insoluble and evaporating the solvent from the emulsion to produce microparticles. The method for administering a bioactive agent to an organism involves suspending the microparticles in a suitable liquid and injecting the organism.

6 Claims, 4 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw Desc	Image
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☐ 9. Document ID: US 5599852 A

L14: Entry 9 of 14

File: USPT

Feb 4, 1997

US-PAT-NO: 5599852

DOCUMENT-IDENTIFIER: US 5599852 A

TITLE: Injectable microdispersions for soft tissue repair and augmentation

DATE-ISSUED: February 4, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Scopelianos; Angelo G.	Whitehouse Station	NJ	N/A	N/A
Arnold; Steven C.	Sparta	NJ	N/A	N/A
Bezwada; Rao S.	Whitehouse Station	NJ	N/A	N/A
Roller; Mark B.	North Brunswick	NJ	N/A	N/A
Huxel; Shawn T.	Lakehurst	NJ	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ethicon, Inc.	Somerville	NJ	N/A	N/A	02

APPL-NO: 8/ 324543

DATE FILED: October 18, 1994

INT-CL: [6] C08K 5/15, C08L 3/00, A61F 2/00, A61M 5/00

US-CL-ISSUED: 523/105; 523/113, 523/114, 523/115, 525/411, 525/415, 424/423, 424/426, 424/484, 604/232, 604/218, 604/891.1, 604/403, 623/10, 623/11, 623/12, 623/13, 623/14, 623/15, 623/16

US-CL-CURRENT: 523/105; 424/423, 424/426, 424/484, 523/113, 523/114, 523/115, 525/411, 525/415, 604/218, 604/232, 604/403, 604/891.1, 623/10, 623/23.72

FIELD-OF-SEARCH: 523/105, 523/113, 523/114, 523/115, 525/415, 525/411, 424/423, 424/426, 424/484, 604/232, 604/218, 604/891.1, 604/403, 623/10, 623/11, 623/12, 623/13, 623/14, 623/15, 623/16

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4595713</u>	June 1986	St. John	523/105
<u>4664655</u>	May 1987	Orentreich et al.	604/232
<u>4758234</u>	July 1988	Orentreich et al.	604/232
<u>4803075</u>	February 1989	Wallace et al.	424/423
<u>4938763</u>	July 1990	Dunn et al.	604/891.1
<u>5204382</u>	April 1993	Wallace et al.	523/115
<u>5278201</u>	January 1994	Dunn et al.	523/113
<u>5278202</u>	January 1994	Dunn et al.	523/113
<u>5321113</u>	June 1994	Cooper et al.	528/176
<u>5342557</u>	August 1994	Kennedy	264/8
<u>5366756</u>	November 1994	Chesterfield et al.	427/2.26
<u>5468253</u>	November 1995	Bezwada et al.	606/230

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0608139A1	January 1994	EPX
0635531A2	July 1994	EPX
42 35 312.2	April 1993	DEX
WO93/15721	August 1993	WOX
WO94/02184	March 1994	WOX

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Neurourology and Urodynamics 12:131-137 (1993) Complications of Teflon Injection for Stress Urinary Incontinence Pentti, et al.; 1993 Wiley-Liss, inc.

J. of Urology vol. 142, 821-822, Pulmonary Migration Following Periurethral Polytetrafluoroethylene Injection for Urinary Incontinence H. Claes, et al.

Plastic & Reconstructive Surgery - Apr. 1991, vol. 87, 693-702, Bioplastique: A New Textured Copolymer Microparticle Promises Permanence in Soft-Tissue Augmentation Robert A. Ersek, M.D., et al.

J. of Urology vol. 148, 1797-1800, Dec. '92, Early Experimence with Intrauuethral Collagen Injections for urinary Incontinence Sender Herschorn, et al.

JAMA Jun. 22/29, 1984-vol. 251, No. 24 3277-3281, Clinical Investigation: Migration and Granulomatous Reactino After Periurethral Injection of Polytef (Teflone) Anthont A. Malizia, Jr. M.D., et al.

J. of Endourology vol. 6, No. 3, '92, 275-277, Endourologic Control of Incontinence with GAX Collagne: The LSU Experience Rodney A. Appell, M.D. et al.

J. American Acad. Dermatol. Dermatologic Surgery; No. 5, Nov. 1989, 992-998, Dermal Implants: Safety of Products Injected for Soft Tissue Augmentation David P. Clark, et al.

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J. Dermatol. Surg. Oncol. 14:7 Jul. 1988, 66-75, Comparison of Injectable Silicone Versus Collagen for Soft Tissue Augmentation Kevin A. Shumrick, M.D., et al.

Clinics in Plastic Surgery vol. 18, No. 4, Oct. '91, 829-855, Alloplastic Implants for Men Brian H. Novack, M.D.

Donaldson, Lufkin & Jenrett Research Bulletin, Oct. 6, 1993, 1565-93 Kent Blair.

Aesthetic Plastic Surgery, 16:59-65, 1992, Bioplastique: A New Biphasic Polymer for Minimally Invasive Injection Implantation Robert A. Ersek, M.D., et al.

ART-UNIT: 151

PRIMARY-EXAMINER: Michl; Paul R.

ASSISTANT-EXAMINER: DeWitt; LaVonda R.

ATTY-AGENT-FIRM: Woodrow; Hal Brent

ABSTRACT:

The present invention provides injectable, bioabsorbable microdispersions suitable for use as a soft tissue repair or augmentation material in animals comprising a fluid carrier that is a liquid polymer selected from the group consisting of liquid polymers and a particulate material. Additionally, the present invention also discloses methods of using these microdispersions for tissue augmentation and repair as well as kits which include prefilled containers to facilitate the use of these materials.

25 Claims, 1 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 10. Document ID: US 5541172 A

L14: Entry 10 of 14

File: USPT

Jul 30, 1996

US-PAT-NO: 5541172

DOCUMENT-IDENTIFIER: US 5541172 A

TITLE: Controlled release systems and low dose androgens

DATE-ISSUED: July 30, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Labrie; Fernand	Quebec	N/A	N/A	CAX
Lepage; Martin	Quebec	N/A	N/A	CAX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Endorecherche, Inc.	N/A	N/A	N/A	CAX	03

APPL-NO: 8/ 474347

DATE FILED: June 7, 1995

PARENT-CASE:

RELATED APPLICATION This application is a divisional of U.S. patent application Ser. No. 08/398,096, filed Mar. 3, 1995, which is in turn a divisional of U.S. patent application Ser. No. 07/900,817, filed Jun. 24, 1992, which is in turn a continuation-in-part of U.S. patent application Ser. No. 07/724,532, filed Jun. 28, 1991.

INT-CL: [6] A61K 31/56

US-CL-ISSUED: 514/169; 514/170, 514/177, 514/179, 514/964, 514/965, 523/113, 424/422

US-CL-CURRENT: 514/169; 424/422, 514/170, 514/177, 514/179, 514/964, 514/965, 523/113

FIELD-OF-SEARCH: 514/169, 514/170, 514/177, 514/179, 514/964, 514/965, 523/113, 424/422

REF-CITED:

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3773919</u>	November 1973	Boswell	N/A
<u>4107071</u>	August 1978	Bayless	N/A
<u>4166800</u>	September 1979	Fong	N/A
<u>4659695</u>	April 1987	Labrie	N/A
<u>4818542</u>	April 1989	Deluca	N/A
<u>4826831</u>	May 1989	Plunkett	N/A
<u>4987268</u>	January 1991	Rauleder	N/A
<u>5043331</u>	August 1992	Hirvonen	N/A

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0058481	August 1982	EPX
2010115	March 1970	DEX
2051580	October 1970	DEX
3503679	February 1985	DEX
4036425	May 1991	DEX
141652	December 1967	NZX
145613	December 1969	NZX
180683	October 1977	NZX
180684	March 1978	NZX
222761	October 1989	NZX
2239798	July 1991	GBX
8601105	February 1986	WOX
8807816	October 1988	WOX
8903678	May 1989	WOX
9010462	September 1990	WOX

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Van Veelen et al., Cancer Chemother. Pharmacol. 15:167-170 (1985).

ART-UNIT: 127

PRIMARY-EXAMINER: Nutter; Nathan M.

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen

ABSTRACT:

Methods of treatment and prevention of estrogen-related diseases, and of fertility control, include low dose (e.g. less than 50 nanomolar serum concentration) administration of certain anabolic steroids, progestins and other substantially non-masculinizing androgenic compounds. Sustained release formulations substantially free of organic solvent, and sustained release formulations for maintaining low serum levels of androgen are disclosed.

1 Claims, 17 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	ICMDC	Draw Desc	Image
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☐ 11. Document ID: US 5434146 A

L14: Entry 11 of 14

File: USPT

Jul 18, 1995

US-PAT-NO: 5434146

DOCUMENT-IDENTIFIER: US 5434146 A

TITLE: Controlled release systems and low dose androgens

DATE-ISSUED: July 18, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Labrie; Fernand	Quebec	N/A	N/A	CAX
Lepage; Martin	Quebec	N/A	N/A	CAX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Endorecherche, Inc.	Quebec	N/A	N/A	CAX	03

DISCLAIMER DATE: 20111108

APPL-NO: 7/ 900817

DATE FILED: June 24, 1992

PARENT-CASE:

RELATED APPLICATION The application is a continuation-in-part of copending U.S. patent application Ser. No. 07/724,532 filed Jun. 28, 1991, and now abandoned.

INT-CL: [6] A61K 31/56

US-CL-ISSUED: 514/169; 514/170, 514/177, 514/179, 523/113, 424/422

US-CL-CURRENT: 514/169; 424/422, 514/170, 514/177, 514/179, 523/113

FIELD-OF-SEARCH: 514/169, 514/170, 514/177, 514/179, 523/113, 424/422

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3773919</u>	November 1973	Boswell	N/A
<u>4107071</u>	August 1978	Bayless	252/316
<u>4166800</u>	September 1979	Fong	252/316
<u>4659695</u>	April 1987	Labrie	514/15
<u>4818542</u>	April 1989	DeLuca	424/491
<u>4826831</u>	May 1989	Plunkett et al.	514/170
<u>4987268</u>	January 1991	Rauleder	568/616
<u>5043331</u>	August 1992	Hirvonen et al.	514/170

FOREIGN PATENT DOCUMENTS

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2010115	March 1970	DEX
2051580	October 1970	DEX
3503679	February 1985	DEX
4036425	May 1991	DEX
141652	December 1967	NZX
145613	December 1969	NZX
180683	October 1977	NZX
180684	March 1978	NZX
222761	October 1989	NZX
2239798	July 1991	GBX
86/0110	February 1986	WOX
WO8807816	October 1988	WOX
8903678	May 1989	WOX
90/10462	September 1990	WOX
9010462	September 1990	WOX

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Young, P. C. M., Keen, F. K., Einhorn, L. H., Stanich, B. M., Ehrlich, C. E., Cleary, R. E. (1980) Binding of medroxyprogesterone acetate in human breast cancer. *Am. J. Obstet Gynecol.* 137: 284-292.

ART-UNIT: 153

PRIMARY-EXAMINER: Nutter; Nathan M.

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen

ABSTRACT:

Methods of treatment and prevention of estrogen-related diseases, and of fertility control, include low dose (e.g. less than 50 nanomolar serum concentration) administration of certain anabolic steroids, progestins and other substantially non-masculinizing androgenic compounds. Sustained release formulations substantially free of organic solvent, and sustained release formulations for maintaining low serum levels of androgen are disclosed.

16 Claims, 15 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 12. Document ID: US 5213812 A

L14: Entry 12 of 14

File: USPT

May 25, 1993

US-PAT-NO: 5213812

DOCUMENT-IDENTIFIER: US 5213812 A

TITLE: Preparation process of sustained release compositions and the compositions thus obtained

DATE-ISSUED: May 25, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ruiz; Jean-Marc	Trelaze	N/A	N/A	FRX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Societe de Conseils de Recherches et d'Applications Scientifiques	N/A	N/A	N/A	N/A	FRX 07

APPL-NO: 7/ 734493

DATE FILED: July 23, 1991

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	9016885	August 1, 1990

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US-CL-ISSUED: 424/499; 424/501

US-CL-CURRENT: 424/499; 424/501

FIELD-OF-SEARCH: 424/461, 424/497, 424/499, 424/464, 424/501

REF-CITED:

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4010125</u>	March 1977	Schally et al.	260/8
<u>4675189</u>	June 1987	Kent et al.	424/490
<u>4767628</u>	August 1988	Hutchinson	424/426
<u>4844910</u>	April 1989	Leslie	424/497
<u>4867985</u>	September 1989	Heafield	424/461

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0058481	October 1986	EPX

ART-UNIT: 152

PRIMARY-EXAMINER: Page; Thurman K.

ASSISTANT-EXAMINER: Benston, Jr.; William E.

ATTY-AGENT-FIRM: Lucas & Just

ABSTRACT:

The invention relates to a preparation process of particles designed to release an effective amount of active ingredient over a predetermined period of time, said particles comprising one or more active ingredients in admixture with a bioresorbable and/or biodegradable polymer or copolymer, and the particles thus obtained in a substantially spheroidal form and substantially deprived of active ingredient on the external covering.

35 Claims, 0 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	FIGURE	Draw Desc	Image
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☐ 13. Document ID: US 4563490 A

L14: Entry 13 of 14

File: USPT

Jan 7, 1986

US-PAT-NO: 4563490

DOCUMENT-IDENTIFIER: US 4563490 A

TITLE: Composite polymeric material for biological and medical application and the method for its preparation

DATE-ISSUED: January 7, 1986

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stol; Miroslav	Prague	N/A	N/A	CSX
Tolar; Miroslav	Prague	N/A	N/A	CSX
Adam; Milan	Prague	N/A	N/A	CSX
Cefelin; Pavel	Prague	N/A	N/A	CSX
Kalal; Jaroslav	Prague	N/A	N/A	CSX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Czechoslovenska akademie ved of Praha	Prague	N/A	N/A	CSX	03

APPL-NO: 6/ 553859

DATE FILED: November 18, 1983

PARENT-CASE:

RELATED APPLICATION This patent application is a continuation-in-part of co-pending Ser. No. 283,424 filed 7/15/81, now U.S. Pat. No. 4,427,808, issued Jan. 24, 1984.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
CS	5125-80	July 21, 1980

INT-CL: [4] C07G 7/00, C08L 89/06, C02C 7/04

US-CL-ISSUED: 524/24; 524/498, 525/54.1, 525/937, 260/123.7, 523/105, 523/106, 523/113

US-CL-CURRENT: 524/24; 523/105, 523/106, 523/113, 524/498, 525/54.1, 525/937, 530/356

FIELD-OF-SEARCH: 523/105, 523/106, 523/113, 523/114, 524/21, 524/24, 524/498, 524/460, 524/845, 525/54.1, 525/937, 351/16H, 260/123.7

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4264155</u>	April 1981	Miyata	524/557
<u>4268131</u>	May 1981	Miyata et al.	260/117
<u>4388428</u>	June 1983	Kuzma et al.	523/449

ART-UNIT: 153

PRIMARY-EXAMINER: Kight; John

ASSISTANT-EXAMINER: Nutter; Nathan M.

ATTY-AGENT-FIRM: Schaffer; Murray

ABSTRACT:

The invention relates to a composite polymeric material suitable for biological and medical applications and to the method for preparation thereof. The composite material consists of 1-99 wt. % of hydrophilic polymer or copolymer based on methacrylic or acrylic esters, 1-99 wt. % of fibrillar collagen, and up to 2.5 wt. % of a crosslinking agent, based on both polymeric components. The composite material may further comprise biologically active compounds and other auxiliary materials, as fillers and/or plasticizers. The composite material is prepared by dispersing the fibrillar collagen in a solution or a highly swollen dispersion of the synthetic hydrophilic polymer or copolymer in a lyotropic agent and the subsequent removal of the lyotropic agent, thus forming a matrix of the synthetic polymer or copolymer penetrated by fibrillar collagen or vice versa. The composite material may be applied on a solid support or reinforced with glass, plastics, cellulose, or metallic materials.

6 Claims, 0 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KEYWORD	Draw Desc	Image
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☐ 14. Document ID: US 4072635 A

L14: Entry 14 of 14

File: USPT

Feb 7, 1978

US-PAT-NO: 4072635

DOCUMENT-IDENTIFIER: US 4072635 A

TITLE: Organosiloxane gels

DATE-ISSUED: February 7, 1978

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jeram; Edward M.	Burnt Hills	NY	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
General Electric Company	Waterford	NY	N/A	N/A	02

APPL-NO: 5/ 584392

DATE FILED: June 6, 1975

PARENT-CASE:

The present application is a continuation-in-part of parent patent application Ser. No. 160,162, filed July 6, 1971, now abandoned.

INT-CL: [2] C08J 9/32

US-CL-ISSUED: 260/2.5S; 260/2.5B, 260/375B, 260/46.5UA, 260/46.5G, 260/46.5H

US-CL-CURRENT: 523/218; 523/113, 523/175, 523/219, 523/223, 524/492, 524/862,
528/15, 528/31, 528/32, 528/33

FIELD-OF-SEARCH: 260/46.5UA, 260/46.5G, 260/825, 260/375B, 260/2.5B, 260/46.5H

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>2797201</u>	June 1957	Veatch et al.	260/2.5B
<u>2806509</u>	September 1957	Bozzacco et al.	260/2.5B
<u>2978340</u>	April 1961	Veatch et al.	260/2.5B
<u>3020260</u>	February 1962	Nelson	260/46.5R
<u>3317455</u>	May 1967	Blome et al.	260/375B
<u>3548420</u>	December 1970	Spence	260/46.5H
<u>3926581</u>	February 1976	Gorden	260/46.5 UX
<u>3928629</u>	December 1975	Chandra et al.	260/46.5 UX
<u>3950300</u>	April 1976	Hittmair et al.	260/46.5 UX

ART-UNIT: 142

PRIMARY-EXAMINER: Foelak; Morton

ATTY-AGENT-FIRM: Koltos; E. Philip Voss; Donald J. Neuhauser; Frank L.

ABSTRACT:

An organosiloxane gel is made by reacting (1) an organosiloxane having a viscosity of from 10 to 10,000 centistokes at 25.degree. C. and being a copolymer consisting essentially of units of the formula $R_{sub.2}ViSiO_{sub.0.5}$, $RViSiO$, $R_{sub.2}SiO$ and $MeR_{sub.2}SiO_{sub.0.5}$, where each R is individually selected from the group consisting of methyl and phenyl radicals, Vi represents a vinyl radical and Me represents a methyl radical, at least 0.50 molar percent of the units in said copolymer being $R_{sub.2}ViSiO_{sub.0.5}$ units and $RViSiO$ units where the terminal groups are at least 50 mole percent of $R_{sub.2}ViSiO_{sub.0.5}$ units and may have as the rest of the total terminal units $MeR_{sub.2}SiO_{sub.0.5}$ units, (2) a liquid hydrogen siloxane of the average general formula $XRMeSiO(R_{sub.2}SiO)_{sub.n}(RHSiO)_{sub.m}SiMeRX$, where each R is as above defined and X is selected from the group consisting of H and R and n and m have such average values that the viscosity of the hydrogen siloxane is no more than 10,000 centistokes at 25.degree. C. and m is at least 1, no more than 25 molar percent of the total R radicals present in (1) and (2) being phenyl and (3) a platinum or platinum compound catalyst in an amount sufficient to furnish about at least 0.1 part per million of platinum based upon the combined weights of (1) and (2); the proportions of (1) and (2) being such that prior to reaction there is an average of from 1.4 to 1.8 gram atoms of the silicon-bonded hydrogen atoms in (2) per gram molecular weight of (1) and there being at least one vinyl siloxy units in (1) for every silicon-bonded hydrogen atom in (2), the molecular weight of (1) being calculated by the equation:

$$\log \text{ visc.} = 1.00 + 0.0123M_{sup.}.5$$

where M is the molecular weight and "visc." is the viscosity of (1) in centistokes at 25.degree. C. The gel can be filled with glass microballoons to lower their specific gravity. The gel produced finds utility in collision pads in automobiles, shock absorbing bumpers, mattresses, snowmobile seats, padding and crash helmets and insulation which can be pumped into electrical conduits, among other things.

18 Claims, 0 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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